IOSR Journal of Engineering (IOSR JEN) **www.iosrjen.org**
ISSN (e): 2250-3021, ISSN (p): 2278-8719
PP 36-38

Design Of Touchlessh and Gesture Recognition System

Lalchandra Gaund[1], Nilesh Naik,Snehal Narute[3], Anita Mahajan[4], Supriya Mandhare[5]

[1]*(Information Technology, Atharva College of Engineering, India)*
[2]*(Information Technology, Atharva College of Engineering, India)*
[3]*(Information Technology, Atharva College of Engineering, India)*
[4]*(Information Technology, Atharva College of Engineering, India)*
[5]*(Information Technology, Atharva College of Engineering, India)*

Abstract: *In today's modern world, everything is digitized where different means of interacting with digital devices are gaining popularity and importance. This Application can perform various tasks such as capture an image, snapshot, media controls using hand gestures. It is an interface that augments the real world around us with digital information. It takes input through webcam and processes the frames of images through image processing tools and perform actions which are pre-defined or can be user-defined. Our approach consists of three different steps that are hand localization, hand gesture tracking and spotting. Ittracks the candidate hand regions on the basisof skin color and motion. The algorithm find the centroids of the moving hand regions and detect a unique gesture interface to perform certain actions.*

Keywords: *Image processing, user-defined gestures, feature recognition, feature extraction, Gesture classification.*

I. Introduction

Inthis era of digital world, we need fast and easy interaction with complex systems that have greater response in turn. This is where human computer interaction comes into picture [1]. Hand gesture recognition is a topic in computer science and language technology with the goal of interpreting human gestures via mathematical algorithms. Gestures can originate from any bodily motion or state but commonly originate from the face or hand. Users can use simple gestures to control or interact with devices without physically touching them. Many approaches have been made using cameras and computer vision algorithms to interpret sign language.

There are two types of gestures: Static and Dynamic gestures.Static gestures represents the relative position of the fingersof the hand whereas, dynamic gestures represents various position of the hand associated to human body[2]. Therefore, to fulfil the intelligent requirements in interactive process, gesture recognition has become a popular topic in the field of computer applications. Gestures occupy a vital position in the daily communication.

II. Literature Survey

For evaluating and designing the project, several resources help has been taken in which Hand Gesture Recognition not much more work has been carried out. In hand gesture recognition different techniques are used to recognize the gestures. Gesture recognition includes different type of gestures such as facial gesture, hand gesture, eye movement. Following are the techniques which are used to identify the hand gestures.Gestures include static and dynamic movement of the hands, or other parts of the body. Gestures allow individuals to communicate a variety of feelings and thoughts, from contempt and hostility to approval and affection, often together with body language in addition to words when they speak. In fact, language is thought to have evolved from using various gestures. The theory that language evolved from manual gestures, termed gestural Theory [3].

Hand gesture recognition system is a process involving classifying the given gestures of the hand portions. It present a technique for recognition of hand gestures from the 11 different static gestures taken from NUS hand posture dataset. Hand gesture detection in the complex background is seen as the challenging task. The purpose of this system is to study and develop a method for the efficient detection and classification of hand gestures in the complex background. Skin similarity measure is used to detect the hand in complex background hand gestures image. The whole of the image is divided into two classes one is hand and other is background. Subsequently, shape and texture features are extracted from the gesture which form the basis of recognition of the hand gesture [4].

Hand Gesture recognition is a process which includes recognize and classifying the given gesture of the hand portion. This paper presents a technique for the recognition of hand gesture from the 11 different static gestures taken from NUS hand posture dataset. Hand gesture detection in the complex background is seen as a challenging task. The purpose of this paper is to study and develop a method for the efficient detection and classification of hand gestures in the complex background. Skin similarity measure is used to detect the hand in complex background hand gesture image. The whole of the image is divided into two classes one is hand, and other is background. Subsequently, shape and texture features are extracted from the gestures which form the basis of recognition of the hand gesture [5].

III. Proposed System

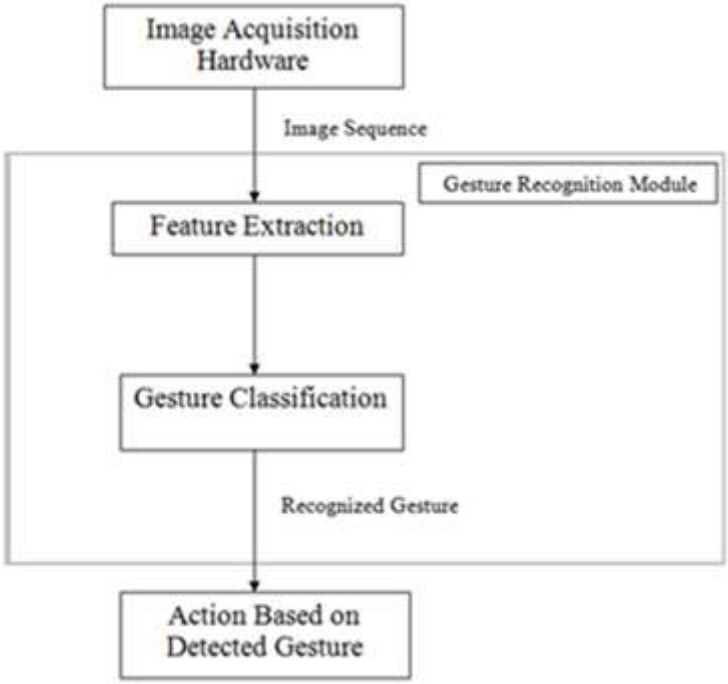

Fig. 1 block diagram for the proposed system

Image acquisition Hardware: It consists of input devices such as camera which continuously monitors and capture the gesture with suitable interface.
Feature extraction: It consists of information extracted from images in terms of numerical values that are difficult to understand and co-relate by human. It is also used to enhance the speed and effectiveness of an algorithm.
Gesture Classification: It is used to recognize the gestures captured in image format and compare the gesture from user-defined and pre-defined gestures.
Actions based on detected gesture: After classification, some conclusions has to be made in order to initiate control actions.

IV. Conclusion

It will enable humans to interact with system in a more direct way without any external interfacing devices. It consists of real time tracking and monitoring of hand gestures by updating real time information. This system has also offered a user friendly application to track, analyze and take various actions based on real time informationwhich will perform various tasks with the help of gesture recognition and image processing principles.

[1]. "Hand gesture recognition system" Praveen D. Hasalkar, Rohit S. Chougule, Vrushabh B. Madake, Vishal S. Magdum, International Journal of Advanced Research in Computer and Communication Engineering Vol. 4, Issue 4, April 2015.
[2]. "Static Hand Gesture Recognition for Human Computer Interaction" Hamid A. Jalab ;
[3]. "Hand Gesture Recognition System Using Image Processing" Sagar P. More and Abdul Sattar, International Conference on Electrical, Electronics, and Optimization Techniques (ICEEOT) – 2016.
[4]. "Hand Gesture Recognition using Shape and Texture evidences in Complex Background" Dinesh Kumar Vishwakarma,International Conference on Inventive Computing and Informatics (ICICI 2017)
[5]. "Gesture Controlled Touch Less Response using Image Processing"Subiya Yaseen, Shireen Fathima, Surendra K.V, Jebran P and Saba SanoberInternational Conference on Energy, Communication, Data Analytics and SoftComputing (ICECDS-2017)